

Caltrans Materials Testing and Engineering Services
Coarse Aggregate Proficiency Testing
Report of Reference Sample Study and Results
October 27, 2004

Following is a summary of the Coarse Aggregate Proficiency Testing, the reference sample study performed in 2004:

<u>Date</u>	<u>Action</u>
April and June of 2004	Caltrans noticed labs of Caltrans coarse aggregate proficiency testing with reference samples
July 9, 2004	158 labs agreed to participate in proficiency testing of the coarse aggregate reference sample.
April through July 2004	Caltrans Independent Assurance staff processed ten tons of material and manufactured 250 samples, performing quality control testing on 10 percent of samples.
July 31, 2004	Caltrans sent to labs the coarse aggregate samples.
September 15, 2004	Labs returned their results of the proficiency tests.
September 30, 2004	Caltrans sent to labs second samples to those labs requiring retest.
October 27, 2004	Results returned to Caltrans from labs regarding retests.
October 27, 2004	Caltrans sent letters to each lab with lab's results.
October 27, 2004	Summary of Coarse Aggregate Proficiency Testing Reference Sample Study posted on Internet.

Each lab was asked to test and report on California Test (CT) 201, CT 202, CT 206, and CT 211. In accordance with the notices, statistics were evaluated for CT 202, CT 206, and CT 211. Results from CT 201 were used to help answer questions on CT 202 results, when applicable.

One hundred fifty-nine labs participated in the coarse aggregate proficiency testing for the reference samples. Of the 159 labs, 106 laboratories received Sample A, and 53 labs received Sample B. Results from one laboratory were so far off that its results were excluded from the statistical evaluation. Results from the remaining 158 laboratories were statistically evaluated. Thirty labs that had at least one result parameter outside the acceptable range in at least one of the three tests were given a retest opportunity for the test outside the acceptable range. Retest results were folded into the original statistical data ranges (no reevaluation of statistics occurred based on retests).

The following page presents the summary of the reference sample study results:

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TEST and Test Parameters	NUMBER OF LABS	AVERAGE	STANDARD DEVIATION	COEFFICIENT OF VARIANCE
California Test 202: Method of Test for Sieve Analysis of Fine and Coarse Aggregates (GRADATION A)	105			
Total materials passing the 25 mm sieve (%)		100	0	0
Total materials passing the 19 mm sieve (%)		96.0	1.06	1.10
Total materials passing the 12.5 mm sieve (%)		70.6	2.81	3.98
Total materials passing the 9.5 mm sieve (%)		45.5	3.85	8.47
Total materials passing the 4.75 mm sieve (%)		1.1	0.84	73.83
California Test 202: Method of Test for Sieve Analysis of Fine and Coarse Aggregates (GRADATION B)	53			
Total materials passing the 25 mm sieve (%)		100	0	0
Total materials passing the 19 mm sieve (%)		92.9	1.39	1.50
Total materials passing the 12.5 mm sieve (%)		63.1	2.37	3.75
Total materials passing the 9.5 mm sieve (%)		37.3	2.46	6.58
Total materials passing the 4.75 mm sieve (%)		1.1	0.75	71.08
California Test 206: Method of Test for Specific Gravity and Absorption of Coarse Aggregates	123			
Bulk Specific Gravity, Oven Dry		2.659	0.0317	1.19
Bulk Specific Gravity, SSD		2.685	0.0272	1.01
Apparent Specific Gravity		2.731	0.0234	0.86
Absorption (%)		1.0	0.29	28.82
California Test 211: Method of Test for Abrasion of Coarse Aggregate by Use of the Los Angeles Rattler	70			
Percentage of Wear		17.2	1.40	8.12